



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,752	12/07/2000	Gregory Burd	MP0064	9422

23624 7590 09/22/2004

MARVELL SEMICONDUCTOR, INC.  
INTELLECTUAL PROPERTY DEPARTMENT  
700 FIRST AVENUE, MS# 509  
SUNNYVALE, CA 94089

EXAMINER
----------


AHN, SAM K

ART UNIT	PAPER NUMBER
----------	--------------

2637

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/730,752	<b>Applicant(s)</b> BURD ET AL.	
	<b>Examiner</b> Sam K. Ahn	<b>Art Unit</b> 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12/07/00.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1-42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>73001, 72301, 30901</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: Please update the application serial number of the applications cited in the specification.  
  
Appropriate correction is required.

### ***Claim Objections***

3. Claims 1-42 are objected to because of the following informalities:  
  
In claims 1,8,15,22,30 and 36, lines 9,9,9,11,9 and 11, respectively, recite  $Hu^{-1}$  without further description with its relationship to  $Hu$ .  
  
In claims 2,9,16,23 and 37, the definition of  $Np$  and  $Nu$  needs to be recited.

In claims 4,11,18,25,32 and 39, the definition of  $u(i)$  and the operation,  $\oplus$ , performed with "bit" and  $u(i)$  needs to be recited.

In claims 5,12,19,26,33 and 40, recite  $M_1$ ,  $M_2$  and  $*$  without further description of the elements.

In claims 6,13,20,27,34 and 41, recite an equation with letters  $i$ ,  $s$  and  $M_i$  without further description.

In claims 37-42, delete ".,," and insert ".,".

Claims 3,7,10,14,17,21,24,28,29,31 and 35 directly or indirectly depend on claim 1,8,15,22,29 or 36.

Appropriate correction is required.

#### ***Allowable Subject Matter***

4. Claims 1-42 would be allowable if rewritten or amended to overcome the claim objections, set forth in this Office action.
5. The following is a statement of reasons for the indication of allowable subject matter:  
Present application discloses a LDPC encoder and method thereof comprising  $H_c$  Decomposer,  $u$  calculator and  $p=Pu$  calculator. The  $H_c$  Decomposer receives a user data, coupled to the  $u$  calculator, and providing  $H_u \bullet u$  and  $H_p \bullet p$  to the  $u$  calculator. And further the  $u$  calculator, coupled to the  $p=Pu$  calculator, provides the user data wherein the  $p=Pu$  calculator calculates the parity data. Prior art does not teach the combination wherein the  $H_c$  Decomposer decomposes  $H \bullet c$  into two

Art Unit: 2637

components wherein  $Hu \bullet u + Hp \bullet p = 0$ , and calculating the vector  $u = Hu \bullet u$  and parity data  $p = Hu^{-1} \bullet u$ .

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kromer et al. teach transmission of coded signal through parity matrix.

Thesling teaches encoding using parity check matrix of the code.

Laurent teaches method of constructing LDPC codes defined by a check matrix with M rows and N columns.

Holman teaches error correction code and a parity check matrix H.

Lee, IEEE reference, teaches generation of convolutional coding method generating matrix of the right and left inverse.

7. This application is in condition for allowance except for the following formal matters:

Claim objections, drawings and specification.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Jay Patel**, can be reached at **(703) 308-7728**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

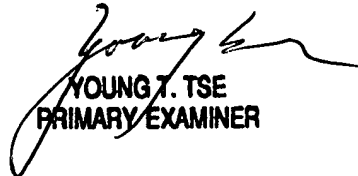
**or faxed to:**

**(703) 872-9306**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn  
8/17/04

  
**YOUNG T. TSE**  
**PRIMARY EXAMINER**